This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Present) A method of preparing a pn-semiconductor material comprising an n-type region and a p-type region, the method comprising in succession the following steps:

- a step of providing a substrate made of a porous oxide ceramic;
- a step in which said substrate is functionalized by chemical grafting of one or more compounds containing at least one group that can be polymerized with one or more precursors of an electrically conducting polymer and at least one group able to be chemically grafted onto said substrate, the one or more compounds are brought into contact with said substrate, and the one or more compounds are grafted to said substrate;
- a step in which said substrate thus functionalized is impregnated with a solution containing said precursor(s); and
- a step in which said precursor or precursors are polymerized to obtain polymers grafted to said substrate through the one or more compounds grafted to said substrate,

wherein the n-type region of the pn-semiconductor material consists of said substrate and the p-type region of the pn-semiconductor material consists of the polymers grafted to said substrate, or conversely.

2. (Previously Presented) The method as claimed in claim 1, in which the porous oxide ceramic is chosen from ceramics based on transition metals chosen from Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, Hf, Ta, W, Re, Os, Ir and Pt, or based on lanthanides, such as La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Er and Yb, or based on elements of Group IIIA of the Periodic Table of Elements chosen from Al, Ga, In and Tl, or based on elements of Group IVA of the Periodic Table of the Elements chosen from Si, Ge, Sn and Pb, or based on elements of Group VIA of the Periodic Table of the Elements, chosen from Se and Te, and combinations thereof.

3. (Previously Presented) The method as claimed in claim 1, in which the porous oxide ceramic is a mesoporous ceramic.

4. (Previously Presented) The method as claimed in claim 3, in which the mesoporous ceramic is mesostructured.

5. (Previously Presented) The method as claimed in claim 1, in which the ceramic is titanium dioxide TiO_2.

6. (Previously Presented) The method as claimed in claim 1, in which the group or groups able to be chemically grafted onto the ceramic are chosen from the groups having the following formulae:

- $COOR^1$ with R^1 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, or a phenyl group;
- COCl;
- $COCH_2CO\text{-}R^1$ with R^1 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, or a phenyl group;
- $PO(OH)_2$, $-PO(OR^2)(OH)$ or $-PO(OR^2)(OR^3)$ with R^2 and R^3, which are identical or different, representing an alkyl group containing 1 to 30 carbon atoms, or a phenyl group;
- CO(NHOH);
- $M(OR^4)_{n-x-1}Z_x$ with x being an integer ranging from 1 to (n-1), M being a metal or a metalloid, n being an oxidation number of M, R^4 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, a phenyl group, a monovalent metal cation or a group of formula $N^+R^1_4$, with R^1 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, or a phenyl group, and Z represents a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, a phenyl group or a halogen atom;
- SO_3M' with M' representing a hydrogen atom, a monovalent metal cation or a group of formula $N^+R^1_4$ with R^1 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, or a phenyl group;
- $B(OM')_2$ with M' representing a hydrogen atom, a monovalent metal cation or a group of formula $N^+R^1_4$ with R^1 representing a hydrogen atom, an alkyl group containing 1 to 30 carbon atoms, or a phenyl group;

- OH;

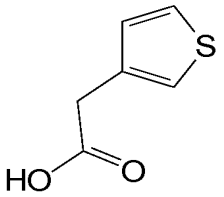
and combinations thereof.

7. (Previously Presented) The method as claimed in claim 1, in which the group or groups that can be polymerized with one or more precursors of an electrically conducting polymer are chosen from the groups: acetylene, p-phenylene, p-phenylenevinylene, p-phenylenesulfide, pyrrole, thiophene, furan, azulene, azine, aniline, cyanophenylenevinylene and p-pyridyl vinylene.

8. (Previously Presented) The method as claimed in claim 1, which further includes one or more chromophores that sensitize said ceramic.

9. (Previously Presented) The method as claimed in claim 1, in which:

- the porous oxide ceramic substrate is a TiO_2 substrate;
- the compound used in the functionalization step satisfies the following formula:



- the precursor used in the impregnation step is an alkylthiophene.

10. (Canceled)

11. (Previously Presented) A method of preparing a photovoltaic cell comprising:

- a current-collecting first electrode;
- a second electrode; and
- a semiconducting region, said region being placed between said first electrode and said second electrode, said process comprising a step of preparing said semiconducting region by carrying out the method as defined in claims 1-9.